

Date: Thu, 10 Feb 94 04:30:31 PST  
From: Ham-Digital Mailing List and Newsgroup <ham-digital@ucsd.edu>  
Errors-To: Ham-Digital-Errors@UCSD.Edu  
Reply-To: Ham-Digital@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Digital Digest V94 #32  
To: Ham-Digital

Ham-Digital Digest                      Thu, 10 Feb 94                      Volume 94 : Issue    32

Today's Topics:

                    Digital radio ?  
                    Firmware upgrade for TAPR TNC  
                    Going to TAPR Conf?  
                    Ham-Digital Digest V94 #31  
HELP - How did you hook up your aea232 & kenwood 440  
                    Packet BBS run off of a SUN?  
                    packet freq for sts60 ? (2 msgs)  
                    Pactor, Amtor  
                    PktWin Version 2.0  
                    Receive BW for 9k6 Packet  
                    regenerating digipeaters etc.  
                    Yaesu FT-5100 / MFJ-1270B (2 msgs)

Send Replies or notes for publication to: <Ham-Digital@UCSD.Edu>  
Send subscription requests to: <Ham-Digital-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Digital Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-digital".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: Wed, 9 Feb 1994 17:34:45 GMT  
From: agate!howland.reston.ans.net!cs.utexas.edu!swrinde!sgiblab!wetware!  
kaiwan.com!jlin@network.ucsd.edu  
Subject: Digital radio ?  
To: ham-digital@ucsd.edu

I am a newbie in amature radio, but like to know if there is rig that can  
do following functions and features.

1. Digital selective calling.
2. Signal encryption, so only A and B can chat, no one else can listen to.

3. A automatic TNC that can manage voice/data/fax switching, when connected with PC, can handle voice mail, e-mail and fax transmission and reception.
4. If operator is away, can configure to away mode, let radio take call (by selcal call sign) and work like a phone answering machine, RBBS or fax machine. When operator is near by, then configure to active mode, so radio will ring like a phone, for operator to pick up the call.

May be I am dreaming, but with recent electronic and digital technology evolution, I believe above feature can be integrated into one total radio system. I know that marine radio will adopt digital selective calling technology for safety purpose, and I hope I can see this kind of feature in Ham rig.

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+-----+
|Johnny C. Lin          P.O.Box 536          Tel:310-9263682      |
|                      Artesia, CA 90702      Fax:310-9269526      |
|                      U.S.A.                  |
+-----+
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Date: 5 Feb 1994 05:58:16 GMT  
From: metro!dmssyd.syd.dms.CSIRO.AU!dmsperth.per.dms.CSIRO.AU!uniwa!  
harbinger.cc.monash.edu.au!yeshua.marcam.com!nic.hookup.net!paladin.american.edu!  
howland.reston.ans.net!usenet@munnnari.oz.au  
Subject: Firmware upgrade for TAPR TNC  
To: ham-digital@ucsd.edu

Contact TAPR for the firmwarek , I think they would b gve  
give you a better deal than tat hat.

You could also dwo ownload the image files from numerous telephone  
BBS's around t he U.DS. S.

--

Fred Peachman  
Broofi kfield OHIO  
av023@ys fn.ysu.edu

-----  
Date: 7 Feb 1994 01:56:20 -0800  
From: nnntp.crl.com!crl.crl.com!not-for-mail@decwrl.dec.com  
Subject: Going to TAPR Conf?  
To: ham-digital@ucsd.edu

See Bob Nielsens posting in this section for more info on the  
TAPR conference.

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Date: 10 Feb 94 03:14:08 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: Ham-Digital Digest V94 #31  
To: ham-digital@ucsd.edu

RE TPK from a 720K diskette

yes it does work on my T1000 with no HD.

I did have to use version 1.80 though. The program will not fit on the diskette with sufficient space to be of use otherwise. I even deleted the docs too.

The T1000 is NOT a speed demon!. Keep the async line speed down to 1200 or a MAX of 2400 (or you will loose some characters).

Otherwise it's a basic TPK install. DO ensure you have a proper cable too, or you will have the standard problem associated with improper cabling.

I was using a Tiny-2 at 1200 baud (if that makes any difference) to your configuration.

dave

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Date: Thu, 10 Feb 1994 02:45:38 GMT  
From: newshub.nosc.mil!news!news@network.ucsd.edu  
Subject: HELP - How did you hook up your aea232 & kenwood 440  
To: ham-digital@ucsd.edu

Have hooked up my 440 for hf packet but with the tnc & 2meter xceiver turned off i get oscilations in ssb mode. So got any ideas? Perhaps i hooked up the 440/tnc incorrectly, how did you hook yours up? ...  
73, ted  
n6trf

-----  
Date: Mon, 7 Feb 1994 19:41:00 GMT  
From: nnntp.ucsb.edu!library.ucla.edu!europa.eng.gtefsd.com!howland.reston.ans.net!usc!yeshua.marcam.com!news.kei.com!ub!acsu.buffalo.edu!ubvms.cc.buffalo.edu!v125pemm@network.ucsd.edu  
Subject: Packet BBS run off of a SUN?  
To: ham-digital@ucsd.edu

Hello,

I was wondering if anyone out there has ever run a packet BBS off of a UNIX box like a SUN.

Most of my experience is with DOS based machines as well as VMS and UNIX mainframes.

Is it possible to set up a SUN in a stand alone config.

Thank You in advance  
Tim, KB2KFC

```
*****
Timothy H. O'Hara
Junior, Electrical Engineering
State University of New York at Buffalo
V125PEMM @ UBVMS.CC.BUFFALO.EDU
tohara @ acsu.buffalo.edu
*****
```

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Date: Wed, 9 Feb 1994 15:23:39 GMT  
From: library.ucla.edu!csulb.edu!nic-nac.CSU.net!usc!cs.utexas.edu!  
hermes.chpc.utexas.edu!news.utdallas.edu!corpgate!nrtpa22!brtph560!b4pph13e!  
cnc23a@network.ucsd.edu  
Subject: packet freq for sts60 ?  
To: ham-digital@ucsd.edu

In article <2j73oh\$9qk@vixen.cso.uiuc.edu>, jtg0707@uxa.cso.uiuc.edu (Jui Tien) writes:

```
|> Hi.
|> Does anyone have the packet freqs and their callsign for sts60?
|> Thanks in advance.
|> jtg0707@uxa.cso.uiuc.edu
|>
```

Downlink (shuttle to ground) 145.55  
Uplink (ground to shuttle) 144.49

Call : W5RRR-1

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=====

Ken M. Edwards, PE Bell Northern Research, Research Triangle Park, NC

(919) 481-8476 email: cnc23a@bnr.ca      Ham: N4ZBB      Packet: n4zbb@n1gmv.nc  
DX PacketCluster (tm) Node : W4DW

All opinions are my own and do not necessarily reflect the views of  
my employer or co-workers, family, friends, congress, or president.

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Date: Tue, 08 Feb 94 22:26:31 -0500  
From: library.ucla.edu!csulb.edu!nic-nac.CSU.net!usc!howland.reston.ans.net!pipex!  
sunic!psinntp!psinntp!wlnntp.psi.com!usenet@network.ucsd.edu  
Subject: packet freq for sts60 ?  
To: ham-digital@ucsd.edu

>Does anyone have the packet freqs and their callsign for sts60?

Packet Uplink is 144.49  
Packet Downlink is 145.55  
Packet Call is W5RRR-1

Be careful to note that the operation is duplex -- do not xmit on the  
downlink frequency. Good luck...

-Seth

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Date: Tue, 8 Feb 1994 17:17:47 GMT  
From: sdd.hp.com!vixen.cso.uiuc.edu!howland.reston.ans.net!math.ohio-state.edu!  
cyber2.cyberstore.ca!nntp.cs.ubc.ca!utcsri!newsflash.concordia.ca!sifon!  
clouso.crim.ca!hobbit.ireq@ihnp4.ucsd.edu  
Subject: Pactor, Amtor  
To: ham-digital@ucsd.edu

I am very interested in digital communications and I am using a TNC on VHF BBS  
locally. It is good to read messages about local activities and equipment for  
sale, etc, etc. I never used it for keyboard to keyboard QSO.

In the HF world, I would like to have a short description of the operations  
going on with those two modes: Amtor and Pactor, before I decide to buy a  
TNC capable of doing those modes. All your comments will be appreciated.

Regards,  
Clem.  
73

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Clement Vaillancourt,

|      Institut de Recherche d'Hydro-Quebec

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Informatique scientifique  
vaillan@ireq.hydro.qc.ca

| Varennes, P. Quebec, Canada, J3X 1S1  
| Tel:+1 514 652 8238 Fax:+1 514 652 8309  
| Radio-amateur: VE2HQJ@VE2CRL.PQ.CAN.NA

-----  
Date: Wed, 9 Feb 1994 17:58:52 GMT  
From: agate!howland.reston.ans.net!torn!newshub.ccs.yorku.ca!elearn.edu.yorku.ca!  
edleslie@network.ucsd.edu  
Subject: PktWin Version 2.0  
To: ham-digital@ucsd.edu

Mike Stansberry (jms@col.hp.com) wrote:

: I can't get that server to accept anonymous ftp, either.

Just keep trying. I got in eventually. The file was not in the published directory, however (and no, of course I don't remember exactly where it was -- it was somewhere around pub/pc/win3/(something) where something may have been archive. They obviously don't leave things lying in the uploads directory for long.

Mine wouldn't work (under 386 enhanced), never did find why. I eventually, as the result of someone else's post about comm drivers, swiched from comm.drv to wfxcomm.drv, and suddenly it worked. Nice program -- but the 50 \*pound\* registration fee seems higher than most shareware prices I've seen (that's like \$100CDN).

73 de Ed Leslie VE3ZVZ

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Date: Tue, 8 Feb 1994 23:47:15 GMT  
From: ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!usenet.ins.cwru.edu!  
gatech!wa4mei.ping.com!ke4zv!gary@network.ucsd.edu  
Subject: Receive BW for 9k6 Packet  
To: ham-digital@ucsd.edu

In article <CKxG17.D9A@synoptics.com> jkaidor@synoptics.com writes:

>

> Can anybody tell me what is required in terms of group  
>delay and bandwidth for good 9k6 operation? I might be  
>able to wangle access to a network analyzer....

Well the existing filters sound way too tight. The rule of thumb for low modulation index data reception is that the filter has to be flat through at least twice the symbol rate. Differential group delay should be less than 10% of the symbol duration.

You can grind through a Fourier transform and get exact figures, but since custom filters are rarely available, just going to the next wider size using the rule of thumb is good enough. In this case you'll likely do best with 30 kHz filters.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

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Date: 10 Feb 94 06:29:25 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: regenerating digipeaters etc.  
To: ham-digital@ucsd.edu

Hi,

Just an explanation perhaps. Having seen quite a number of different systems, here is what one could see as "ranking" list of devices used for relaying data modes. Note that the short form of "digipeater" is just "digi". I'll also restrict myself to AX.25 at 1200 Bd AFSK.

#### SIMPLE DIGIPEATER

Practically any packet terminal station these days can act as a simple digi. If station A wants to communicate with station C using station B as a digi, it works like this during the connect:

A sends a packet for B, addressed to C. B decodes the packet and hands it on to C in a slightly different format, but on the same radio channel. B does NOT acknowledge this packet. C sends an acknowledge packet to B, which is again decoded, re-encoded and sent to A. It is only now that A knows that its packet has actually arrived. A slightly more intelligent way is to let B know either side that it has heard their packets and is going to take care of their delivery. But that's just a small improvement.

The advantage of this kind of device is its simplicity. The disadvantages are that each retransmission by the digi blocks the single radio channel. Also, A and C and perhaps other stations on the channel cannot hear each

other's transmissions. As a result, their packet may collide and get lost. All this affects the throughput. Networks based on single radio channel digipeaters are a waste of time, especially when one expects heavy traffic.

## DATA REPEATER

This is just an ordinary 2M FM repeater, except that there is no tail. There are mainly two advantages of this system: for each packet from A to C via the data repeater B, only a single transmission blocks the channel instead of two, because the repeater downlinks the packet to C while it is being transmitted by B. The other advantage is that all users on the repeater system can hear each other, and collisions are avoided.

The big disadvantage is that this is a one-hop system, and several hops are hard to realize. There is absolutely NO intelligence involved at the repeater site. Hence, packets that arrive in noisy, but decodable form at the repeater site may be totally garbled by the time they reach their destination. Data repeaters are not a packet network device.

## REGENERATING REPEATERS

A standard data repeater would carry just repeat the AFSK tones of the incoming signal - no matter what they are or how crooked they are. You could actually broadcast Mozart through a standard data repeater without too much of a problem.

Regenerating repeaters overcome the noise problem mentioned in the data repeater paragraph, by acknowledging that it is a data signal going across the repeater. The data signal is decoded into a bit stream, which get immediately re-encoded and retransmitted. Good regenerating repeaters also regenerate the TX clock, i.e., the rate at which the bits come in. This permits a near-perfect output signal stripped of almost all noise. If the packet was decodable at the repeater site, it will almost certainly be decodable at its destination as well.

Still, the regenerating repeater does not address the networking question. You still can't use it reasonably for more than one hop, unless you want a single channel all across the land (and the congestion that goes with it).

## DUPLEX DIGIPEATER



The duplex digi solves those problems. Its front end looks exactly like a regenerating repeater and acts as one. However, deep down in the box there's a TNC or similar listening, which can also take over the repeater's transmitter if it wants to.

Station A can now talk TO B, just as if it was a simple digipeater. This way you avoid collisions, while still having an intelligent device sitting at the digi's site.

What is the advantage over the regenerating repeater in terms of throughput? Actually, none... - unless you connect something else to the TNC to help the system get on a network.

#### NETWORK NODE DIGIPEATER

This animal would typically have a duplex digipeater as its user access. The user access is the port that simple users with their BayCom modems and TNC's connect to. Your local BBS, however, is usually on a different radio channel. So, if you are station A, the digi is station B, and the BBS is station C, this is what happens: the digi B receives your packet on the user port (One radio channel, e.g., on 2M). It decodes the packet, re-encodes it and sends it on to the BBS on a fast link, e.g., 9600 Bd G3RUH on 23 cm. This way, your user channel stays clear for other traffic during the transmission. Also, the users don't have to wait for the acknowledge packet to come from the BBS. The digi acknowledges all incoming packets.

One can easily go on from there: instead of linking only to the BBS, other radio channels can be added that link the network node digi to neighbouring network nodes. This way, it is quite easy to connect to stations far away. Your access channel is not blocked by endless repetitions of the same packet. Instead, the packet which you sent out in 1200 Bd is now routed around the country at higher speeds, typically 9600 Bd or up.

Germany has an excellent example of such a network at work, it extends into many of the neighbouring European countries. No need to rely on your local BBS - just use a neighbouring one if it is down.

73, Ulrich ZL1DDL  
Ulrich Guenther  
Physics Department  
University of Auckland  
PH: 09-373 7599 ext. 8864

Internet: umg@phyvc.auckland.ac.nz  
Amateur Packet Radio: ZL1DDL@ZL1AB.#11.NZL.OC

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Date: 7 Feb 1994 11:33:16 GMT  
From: solaris.cc.vt.edu!myhost.subdomain.domain!plymale@uunet.uu.net  
Subject: Yaesu FT-5100 / MFJ-1270B  
To: ham-digital@ucsd.edu

I'm trying to interface a Yaesu FT-5100 to a MFJ-1270B TNC via the 5100's DATA IN/OUT jack. I constructed a connector based on the instructions in the 5100 manual. The problem is that the transmit audio level out of the TNC is way too low. Adjusting trimpot R76 during the 1270B recalibration procedure does not help. Any suggestions for increasing transmit audio level are appreciated.

Thanks...

Bill Plymale - KD4CIY  
plymale@mousetrap.es.vt.edu

-----  
Date: 8 Feb 1994 17:30:06 GMT  
From: news.mentorg.com!hpcan240.mentorg.com!sherlock!dclemans@uunet.uu.net  
Subject: Yaesu FT-5100 / MFJ-1270B  
To: ham-digital@ucsd.edu

plymale@myhost.subdomain.domain wrote:  
: I'm trying to interface a Yaesu FT-5100 to a MFJ-1270B TNC via  
: the 5100's DATA IN/OUT jack. I constructed a connector based on  
: the instructions in the 5100 manual. The problem is that the  
: transmit audio level out of the TNC is way too low. Adjusting  
: trimpot R76 during the 1270B recalibration procedure does not help.  
: Any suggestions for increasing transmit audio level are appreciated.

: Thanks...

: Bill Plymale - KD4CIY  
: plymale@mousetrap.es.vt.edu

What data speed are you trying to get?  
According to a Yaesu rep, for 2400 baud or less, you should not try to use the data jack on the back. You should connect to the microphone jack on the front. The data jack has been optimized for 9600 baud.

I have a Yaesu 5100 and a PK232-mbx, and it works fine connected via the front microphone jack.

dgc

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Date: 7 Feb 1994 09:49:38 GMT  
From: pacbell.com!sgiblab!spool.mu.edu!howland.reston.ans.net!xlink.net!  
scsing.switch.ch!swidir.switch.ch!univ-lyon1.fr!lanpc1.univ-lyon1.fr!  
cerdini@network.ucsd.edu  
To: ham-digital@ucsd.edu

References <2ir20o\$k0c@cismsun.univ-lyon1.fr>,  
<1994Feb5.202624.4663@globv1.hacktic.nl>, <claud.760604620@bauv106>r  
Subject : Re: IP encapsulation in AX.25 packets

Peter Busser (peter@globv1.hacktic.nl) wrote:  
Claude Frantz (claud@bauv.unibw-muenchen.de) wrote:

: >>: Where can I find technical information about the subject ?  
: >> RFC1226 : Internet Protocol Encapsulation of AX.25 Frames  
: >Excuse me, isn't that just the other way round?  
: Exactly !

Sorry :) In fact I always use IP to encapsulate AX25 frame... And I  
believe that you want do the same thing... I have read your article too  
fast perhaps.. And so, do you found something about encapsulate IP frame  
in AX25 ???

73 QRO,

--  
Michel CERDINI - Universite Lyon 1 | E-Mail cerdini@lan1.univ-lyon1.fr  
Laboratoire d'Analyse Numerique URA 740 | Tel Pro 72 43 10 93 - FT = Arnaque  
43, boul. du 11 novembre 1918 | Minitel 78 36 19 96 (24h/24) v  
69622 Villeurbanne Cedex, France. | Modem 78 36 10 01 (V32b/8N1) \_/

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End of Ham-Digital Digest V94 #32

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